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NOTE ABOUT LACEWINGS (NEUROPTERA) FROM KERMĀN AND ESFAHAN PROVINCES, IRAN

ABSTRACT – New faunal data regarding Iranian Neuroptera are reported. A total of 23 taxa are cited, 21 of these from Kermān Province, belonging to four families (Chrysopidae, Mantispidae, Nemopteridae and Myrmeleontidae). The mantidfly species *Afromantispa nana* (Erichson, 1839) is new for Iran.

RIASSUNTO – *Nota sui neurotteri (Neuroptera Chrysopidae, Mantispidae, Nemopteridae e Myrmeleontidae) delle provincie Kermān e Esfahan, Iran*.
Viene presentato un elenco di reperti di Neuroptera raccolti in Iran. 23 taxa sono riportati, dei quali 21 dalla provincia di Kermān, appartenenti a quattro famiglie (Chrysopidae, Mantispidae, Nemopteridae e Myrmeleontidae). Il mantispide *Afromantispa nana* (Erichson, 1839) viene segnalato per la prima volta in Iran.

KEY WORDS: faunistic, green lacewings, mantidflies, spoon-winged lacewings, antlions, owlflies, Islamic Republic of Iran.

INTRODUCTION

Some recent collecting expeditions conducted by one of us (DB) in the Mijan Valley, Kermān Province (IRAN) and in other Iranian areas have made it possible to collect around a hundred specimens of lacewings (Neuroptera). This work reports on these data, commenting on their faunal significance.
Comparing the data of this study with an updated faunal list of the Neuroptera of IRAN is not easy to carry out at the moment, since the most recent overall study (Mirmoayedi, 2008) has not been published and remains only as data presented at a conference which refers to an overall contingent of 188 species of this order present within the current political borders of the country. The most recent overall and reliable faunal study dates back to over twenty years ago, as part of a broader assessment relating to the entire W-Palearctic fauna (Aspöck *et al.*, 2001), which listed 172 Neuroptera in 10 families (i.e. 38 Chrysopidae, 7 Hemerobiidae, 1 Sisyridae, 14 Coniopterygidae, 1 Dilaridae, 3 Mantispidae, 3 Berothidae, 14 Nemopteridae, 84 Myrmeleontidae and 7 Ascalaphidae). A comparison for each species using the most updated data in this regard was possible thanks to a constantly updated online resource, consulted until 30 June 2024 (Oswald, 2024). The Iranian fauna of some families of Neuroptera has been studied more recently: for a couple of these (Mantispidae - Snyman *et al.* (2018) and Myrmeleontidae - Mirmoayedi *et al.* (2015)) reference was also made to these studies.

MATERIAL AND METHODS

In the period between 2005 and 2017, some study trips were conducted in Iran, 12 field trips in total aimed at sampling xylophagous cerambycids and buprestids. These field samplings were conducted by one of us (DB) together with some colleagues (Gianluca Magnani from Cesena, Italy and with the now deceased Gianfranco Sama from Cesena and Domenico Gianasso from Castelnuovo Don Bosco, Italy) and were always accompanied by our Iranian colleague Babak Hafezi, an exceptional guide and great collector. Over the years, all Iranian provinces have been explored, from the Caspian Sea to the Persian Gulf. Many new species of both jewel beetles and long beetles have been found. The material in this note refers mainly to the Mijan Valley, on the north-western slopes of the Jebel Barez massif (Figs 1, 2). The Neuroptera were collected partly during the day, but also with a handcrafted LED lamp (made by our colleague Maurizio Gigli), in the lowest part of the Valley.
A few other specimens collected in different locations in the Provinces of Kermān and Esfahan are also reported.
Most of the specimens refer to a single sampling collection made by one of us (DB) on 16 May 2017 in the locality IRAN (Kerman), Valley of Mijan, at an altitude of 1552 m above sea level (geographical coordinates 28.701667° N 57.945833° E). In all other cases, the sampling card data are reported.
All the specimens are preserved in the Letardi private collection. For the determination of the specimens, we referred to Hölzel, 1972, 1999; Aspöck *et al.*, 2006; Snyman *et al.*, 2018; Hajiesmaeilian *et al.*, 2020; Krivokhat-

Fig. 1. Neuroptera collection area.

Fig. 2. Microhabitats of the lacewing collecting place.

sky *et al.*, 2022 and Aistleitner & Abraham, 2023.
The faunal list follows the catalogue of West Palearctic Neuropterida (Aspöck *et al.*, 2001).

RESULTS

Chrysopa persica Hölzel, 1966
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♀.

Rare species reported so far only for the Sistan and Baluchestan Provinces (Oswald, 2024).

Apertochrysa venosa (Rambur, 1842)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 7♀♀.
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 5♂♂, 7♀♀.

Widespread species distributed in southern Europe, northern Africa, Middle East to Mongolia (Oswald, 2024). Common species in dry habitats.

Cunctochrysa albolineata (Killington, 1935)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 2♀♀.

A widespread species distributed in the eastern and western Palaearctic (Oswald, 2024).

Chrysoperla carnea s.l. (Stephens, 1836)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 3♂♂, 4♀♀.
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 1 ♂.

The taxonomic situation of species of the genus *Chrysoperla* Steinmann, 1964 is quite complex. These specimens collected in Kermān Province are reported as *Chrysoperla* gr. *carnea*, a complex of very similar species (Mirmoayedi *et al.*, 2017).

Suarius walsinghami Navás, 1914
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 1♀.
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 1♂, 1♀.

A widespread species in south-western Europe, northern Africa, Middle East extending up to Pakistan (Oswald, 2024).

Mantispa aphavexelthe Aspöck U. & Aspöck H., 1994
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 2♂♂.

A common species reported for southern Europe (widespread), north-western Africa (Morocco), Middle East (widespread) east to eastern Asia (Mongolia, China) (Oswald, 2024).

Afromantispa nana (Erichson, 1839)
IRAN, Kermān, East of Jiroft, environment of Mijan, 5.V.2016, 1662 m, 28°42’17.5’’N, 57°57’48.3’’E, Baiocchi D. leg., 1♂, 1♀.

Species cited for Africa (widespread) and Arabian Peninsula (Oswald, 2024). New for Iran (most widely distributed species in this country, based on as yet unpublished studies, Zheng Y.-c., pers. comm.).

Croce schmidti (Navás, 1927)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♀.

A quite common species reported for Middle East (Israel east to Pakistan) and Yemen (Oswald, 2024).

Dielocroce modesta Hölzel, 1975
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 1♀.

A rare species collected in SW Iran, Oman and E Turkey (Hölzel, 1999; Aistleitner & Abraham, 2023; Oswald, 2024).

Nemoptera rachelii Aspöck U., Letardi A. & Aspöck H., 2006
IRAN, Esfahan, 20 km SE of Daran, 12.VI.2011, Simandi J. leg., 1♀.

An Iranian endemism, recently described (Aspöck *et al.*, 2006, Oswald, 2024) and very rarely collected.

Palpares libelluloides (Linnaeus, 1764)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂.
IRAN, Kermān, Rayen waterfall road, 31.V.2015, 29°34’53’’N 57°18’11,8’’E, Baiocchi D. leg., 1♂, 2♀♀.

A widespread W Palearctic antlion (Oswald 2024), also quite common in Iran (Mirmoayedi *et al.*, 2015).

Acanthaclisis occitanica (Villers, 1789)
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 1♀.
IRAN, Kermān, East of Jiroft, environment of Mijan, 5.V.2016, 1662 m, 28°42’17.5’’N, 57°57’48.3’’E, Baiocchi D. leg., 1♀.

An antlion widespread W Palearctic up to India (Oswald, 2024), quite common in Iran too (Mirmoayedi *et al.*, 2015).

Myrmecaelurus* cfr. *acerbus (Walker, 1853)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♀.

The taxonomic state of genus *Myrmecaelurus* Costa, 1855 is quite complex: several new species should be described (Mirmoayedi *et al.*, 2015) and this specimen most likely belongs to the species *M. acerbus*, a widespread antlion, common in northern Africa and Palearctic Asia (Oswald, 2024), reported in Iran till now only as *Myrmecaelurus varians* Navás, 1913, a junior synonym

of *M. acerbus* (Mirmoayedi *et al.*, 2015).

Iranoleon nitidus Hölzel, 1972
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 4♀♀.
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 3♂♂, 4♀♀.

Species previously collected in Afghanistan and in only one Iranian locality (a female collected in 1970, Fars Province) (Hölzel, 1972; Mirmoayedi *et al.*, 2015).

Cueta luteola Hölzel, 1972
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂.

An Iranian endemism very rarely collected, so far only known for the eastern part of Iran (Hölzel, 1972; Mirmoayedi *et al.*, 2015).

Myrmeleon pseudohyalinus Hölzel, 1972
IRAN, Kermān, valley of Mijan, 4.V.2016, Baiocchi D. leg., 1♂.

Species cited for northern Africa (Morocco), Arabian Peninsula (UAE), Iran and Afghanistan, new for Kermān Province (Hajiesmaeilian *et al.*, 2020).

Delfimeus laetus Hölzel, 1968
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 10♂♂.

Species cited for Iran, Afghanistan and Pakistan (Oswald, 2024). A female specimen with the same label belonging tentatively to this species has been also collected.

Neuroleon* cfr. *leptaleus (Navás, 1912)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 2♀♀.

Taxonomy of this genus is quite complex: this couple belongs tentatively to this taxon, which has a southern Palearctic distribution, from Morocco to Pakistan (Oswald, 2024).

Pseudoformicaleo gracilis (Klug, 1834)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♀.

A widespread antlion with a southern Palearctic distribution, from Morocco to Pakistan and sub-Saharan Africa, according to Mirmoayedi *et al.* (2015), previously reported in Iran only from Bandar-e ‘Abbas (Hormozgan Province) (Hölzel, 1972).

Creoleon griseus (Klug, 1834)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 1♀.

A widespread antlion (Oswald, 2024), also common in Iran (Mirmoayedi *et al.*, 2015).

Dominikon lagopus (Gerstaecker, 1894)
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 1♂, 1♀.

Species recently synonymised with *Nedroleon striatus* Hölzel, 1972 (Krivokhatsky *et al.*, 2022), known for Turkey, Iraq and Iran (Oswald, 2024).

Dominikon aspoecki Dobosz, Ábrahám & Krivokhatsky, 2022
IRAN, Kermān, valley of Mijan, 1552 m, 16.V.2017, 28°42’06’’N 57°56’45’’E, Baiocchi D. leg., 2♂♂.

A recently described species (Krivokhatsky *et al.*, 2022), known for eastern Iran and Turkmenistan. The two species of this genus are sympatric in this area of southern Iran.

Libelloides macaronius (Scopoli, 1763)
IRAN, Esfahan, Sisaht [mountains?], 2012, Baiocchi D. leg., 8♂♂, 5♀♀.
IRAN, Baiocchi D. leg., 9♀♀.

A widespread owlfly from eastern Europe to western China (Oswald, 2024).

DISCUSSION

Although not aimed at studying Neuroptera, research conducted in the Province of Kermān by one of us (DB) has provided data for 21 taxa, belonging to four families (Chrysopidae, Mantispidae, Nemopteridae and Myrmeleontidae). Several species are new to the Kermān Province (i.e. *Chrysopa persica*, *Mantispa aphavexelthe*, *Afromantispa nana*, *Iranoleon nitidus*, *Cueta luteola*, *Myrmeleon pseudohyalinus*, *Delfimeus laetus*, *Pseudoformicaleo gracilis*, *Creoleon griseus*, *Dominikon lagopus* and *D. aspoecki*), although all the species cited in this study are within the full range of their geographic and bioecological range. Even the presence of *Afromantispa nana*, cited for the first time in Iran, does not represent a surprise, but only confirms that many faunal data relating to this group of insects still need to be defined (similarly to the still unpublished citation of the presence in Iran of the genus *Brinckochrysa* Tjeder, 1966 (Hajiesmaeilian, comm. pers.)). It should also be underlined that, not only amongst the Myrmeleontidae, there are many species new to the Province of Kermān: the distribution in Iran of the Chrysopidae, for example, is known in a very generic way (Mirmoayedi, 2008) and the territorial distribution in Iran of many of the species reported in this note is not known in detail.

As pointed out by Abivardi (2001) in two scant pages dedicated to Iranian Neuroptera, the extraordinarily rich fauna is based on very few studies, conducted mostly by a limited number of researchers from non-Iranian countries: the recent increase in Iranian scholars dedicating part of their research to the faunal richness of Neuropterida in their country gives hope for a future increase

in knowledge on the subject. Many areas of this country have yet to be adequately explored. The data presented in this note demonstrate that even research not strictly aimed at understanding these insects, conducted in a very limited area of Iranian territory, can provide interesting data.

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